

Kyphoplasty To Treat Vertebral Compression Pain in Cancer Patient with Severe Thrombocytopenia and Liver Metastasis

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Introduction

- A **kyphoplasty** is a procedure in which a vertebral body cavity is filled with a polymer to correct a vertebral compression fracture or replace lost bone from a neoplastic lesion.
- Surgical intervention has been shown to better improve pain when compared to conservative treatment.¹
- Patients with fractures and neoplasms present with unique challenges related to physiologic disturbances.

Case

- A 55-year-old female with small cell lung cancer which metastasized to the liver (Image 1) and thoracic and lumbar spines for which she underwent chemoradiation therapy.
- She was diagnosed with compression fractures at T10 and T12 with a plan to undergo kyphoplasty (Image 2). On the day of the procedure, she had platelet count of 35k/microliter of blood without clinical signs of bleedings and her procedure was postponed. The next day, a repeat set resulted in platelets of 64k without a transfusion and with normal coagulation studies.
- She underwent kyphoplasty and RFA the following day with a transpedicular balloon approach (Image 2) with improvement in pain.

References

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Discussion

- **Thrombocytopenia** is a prevalent issue in cancer patients as an effect of chemotherapy agents and decreased production of growth factor thrombopoietin (TPO) in those with liver involvement or dysfunction.
- Low platelets increase the risk of bleeding. An inadvertent hematoma in the paraspinal or epidural space may cause serious neurological consequences.
- A kyphoplasty is considered to have a *moderate* bleeding risk according to the SIR Standards of Practice Consensus Guidelines. Apart from dissection and bone bleeding, spinal epidural hematomas have been described in the literature even though the space is not intended to be directly manipulated².
- Typical thresholds for chronically thrombocytopenic patients are 10k/microliter and 50k/microliter or higher when undergoing invasive procedures³.

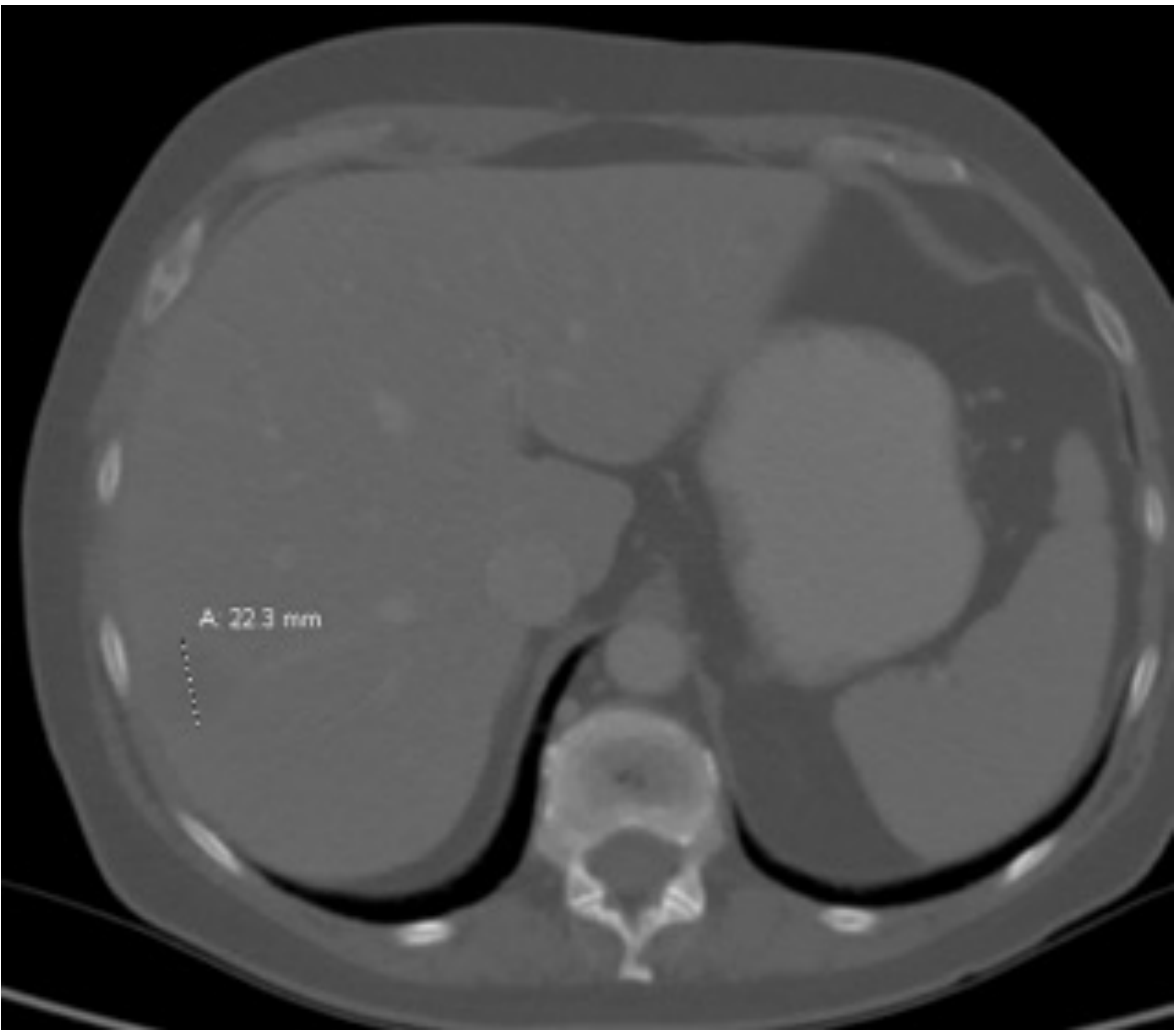


Image 3 (left): Fluoroscopy showing cement deposited in T10 and T12.

Image 1 (above): CT abdomen showing enlarging liver metastasis to prior scans.

Image 2 (far left): STIR MRI of the thoracic spine showing vertebral compression fractures at T10 and T12 at the site of the patient's acute back pain.



Learning Points

- A thrombocytopenic patient undergoing kyphoplasty should be assessed for clinical signs of platelet dysfunction such as purpura, petechiae, nosebleeds, blood in the stool or urine and bleeding that lasts a long time.
- Pay attention to anticoagulation medications.
- Patients with additional liver involvement should be assessed for coagulopathies with a PTT, PT, INR and possibly TEG. Platelet transfusions should be given to patients with platelets below 50,000/microliter with an accepted increase of approximately 30,000/microliter with one apheresis unit. INR irregularities over 1.5 may be treated with FFP, PCC and Vitamin K depending on the severity.